

## AMENDMENTS TO SPECIFICATION

Applicants amend the specification as follows:

[0036] Fig. 4A is a top view, and;

[0037] Fig. 4B is a side view of another embodiment form of a hinge according to the invention;

[0038] Fig. 5A is a sectional view of ~~the same~~ another embodiment form of the invention;

[0039] Fig. 5B shows the same embodiment form of the invention as Fig. 5A from the side;

[0040] Fig. 5C is a bottom view of the same embodiment form of the invention as Fig. 5A;

[0041] Fig. 6A is a side view partially in section and;

[0042] Fig. 6B is a view from the right-hand side, referring to Fig. 6aA, of another embodiment form of the hinge according to the invention;

[0051] Fig. 9A shows a top view and;

[0087] Figs. 1A, 1B, 1C and 1D show different views of a hinge 10 constructed according to the invention with at least one hinge part 16 which can be mounted in an opening 12, which is rectangular in the present case (see, e.g., Fig. 2), in a thin wall 14, such as a sheet-metal cabinet door ~~[[H4]]~~, and another hinge part 18 which is swivelably connected to the first hinge part 16 by means of a hinge pin 20 and can be fastened to a door frame ~~20 22~~, see Fig. 1A. The respective hinge part 16 or 18 which can be mounted at the sheet-metal cabinet door or thin wall 14 (as well as on the frame 22) comprises a head part 28, such as a flange or, in this case, a leaf of a hinge, which overlaps the rim 24 of the opening 12 in the thin wall 14 or frame 22 on one (outer) side 26 thereof, and a body part 30 proceeding from the head part 28 which can be slid through the opening 12 in the thin wall 14, and a holding part 34 which is carried by the body part and is supported on the other (rear) side 32 and is separate from the body part 30. The holding part 34 is formed by holding elements 36. The holding element 36 projects flexibly from the body part 30 in direction of its outer surface and its free end has an inclined surface 38 for supporting the body part 30 without play on the rim or edge 40 of the opening 12 in the thin wall 14 (or frame

22). Because of the symmetry of forces, it is advantageous, e.g., according to Fig. ~~[[4A]]~~ 4B, to provide two holding elements 36-1 and 36-2 which are arranged diametrically relative to one another and which are acted upon by spring arrangements 42, for example, a coil spring 42 common to the two holding elements 36-1 and 36-2 or a coil spring 42-1, 42-2 shown in Fig. 3A in such a way that the holding elements 36, 136 are forced in the direction of the rim 40 of the through-opening 12, see Fig. 2. As is shown in Fig. 4B, the holding elements 36-1, 36-2 can be levers 44 which are arranged at a distance A from the (rear) surface 32 of the thin wall 14 around an axis 46 parallel to the plane of the thin wall 14. The angle of rotation of the levers 44 is limited by stop arrangements 48, while, in Fig. 4B, the holding elements 36 are arranged at a distance A from the (rear) surface of the thin wall so as to be rotatable to a limited extent around the axis 46.

[0088] According to the view in Fig. 3A, the arrangement of the holding elements 136-1, 136-2 is carried out in such a way that they are arranged as slides 52 which are arranged so as to be axially displaceable in the cylinder 50 which is rectangular in cross section and parallel to the plane of the thin wall 14 or frame 22, which slides 56 52 are held against the pressure spring force of the spring 42 by a hook arrangement 54 which locks between the slides 56 52 themselves or in the cylinder 50, see, e.g., Fig. 3B, with the hooks 54 or (in Fig. 6B) with the hooks 154 which are supported at a wedge 56 or at a pin 156.

[0090] The cylinder 50 can also have a partial dividing wall or undercut or an opening edge 60 at which the slide can be supported axially by a shoulder or a hook. For example, Fig. 8A shows a hinge part 316 with a body part 330 in which slides 352 can move back against the force of a spring 342 through the edges of the opening when pushed in as a result of the bevel 62 (see Fig. 8A) until the edge has reached the clamping surface 64, in which position the spring 342 presses the two fastening elements 352 against the edges of the opening and securely connects the hinge part 316 to the thin wall 14. In order to prevent the loss of the holding elements 352 before being mounted in an opening, they are hooked to one another mutually by means of hooks 354 (see Fig. 8C). Nevertheless, it is possible for them to deflect with respect to one another when pushed in and to reach the position according to Fig. 8B. Fig. 8D shows that the middle position is secured by a fixing plug 66 in the moved out state. Further, the fixing plug 66 prevents the

removal of the hinge in that the holding elements 352 cannot be pushed back again into the cylindrical housing 350 (see Fig. 8D). The holding element shown in Figs. 8F, 8G and 8H as an individual part also shows the space 368 for the pressure spring 342. An offset path 70 receives the tip of the fixing plug 66 and makes it possible for the holding elements to carry out only a limited lifting movement. Another offset 72 makes it possible for the two holding elements which are movable relative to one another to slide next to one another.

[0091] Fig. 7C is a sectional view showing a thin wall 14 of sheet metal in which areas of the opening rims bulge due to high loading. In this case, it is advantageous when the head part 28 has a recess 74 in the area of the holding elements 36 in which the bulging rim areas 24 can be received. This enables fastening without play by means of pushing the holding element 36 further.

[0092] Fig. 9A is a front view and Fig. 9B is a side view showing a hinge holding part 434 which is composed of four pairs of holding elements 436 lying next to one another. The construction is similar to that shown in Figs. 4A, 4B, but a shared pin 446 is provided for holding the holding elements 436 that are located opposite one another. The axial pin 446 is held by means of three supports 74, one support receiving a corrugated surface of the end of the axial pin so as to press upon it.

[0093] At their ends, the holding elements 436 have a projection 76 which, in combination with a recess in the head part 428, leads to a limiting of the rotational path due to the spring force 242 442. The particular advantage in this respect is also that the head part 428 and the body part formed by the supports 74 can also be injection molded in a simple manner, although a groove 78 is provided in this case for a seal which would normally require sliding arrangements with injection molding dies.

[0094] The hinge shown in Fig. 1A has a second hinge part 18, which is swivelably connected to the first hinge part 16, and another construction like the first hinge part 16. On the other hand, Fig. 5A shows a second hinge part 218 which is swivelably connected to the first hinge part 214 but which has a construction that differs from the first hinge part with respect to its fastening to a frame such as a door frame 222 or to a door leaf and is welded in this instance. The second

hinge part can also be screwed to the frame or to the door leaf (see Fig. ~~{2A}~~ 25A).

Alternatively, the second hinge part can also be glued to the frame or to the door leaf. Finally, it is also possible to fasten the second hinge part to the frame or to the door leaf by means of a clamping pin as in the prior art, see Fig. 24.

[0095] According to Fig. 10, a door 14 is swivelably connected to a frame part 22 by means of a hinge 10. The two hinge parts are held in the door ~~27~~ frame 22 and in the door leaf 14, respectively, by means of holding elements 36.

[0096] For the sake of symmetry, it is advantageous to provide the other side of the cabinet with corresponding openings also. These openings are used for fastening a bar lock element. In the embodiment form according to Figs. 11A, 11B, 11C, 11D, the holding elements 536 are formed by two metal pieces or plastic pieces which lie next to one another. They form projections and recesses that are directed toward one another such that the two holding elements 536-1, 536-2 can be drawn back against the force of the spring 542 by a rotatable tool or key 82 by rotating the tool 82, and the hinge can accordingly be removed from the door leaf 514. The construction is advisably carried out in such a way that the lever of tool 82 stays in the opened position automatically so that when there is a plurality of hinges they can all be brought into the open position simultaneously and all hinges can accordingly be removed from the door leaf simultaneously.

[0100] Due to the inclined surface 127 of the holding elements 736 which extends at 45° (see particularly Fig. 12C and Fig. 12G), these holding elements 736 are forced outward in the direction of the channel walls 129 by the spring pressure of the spring 742 so that friction occurs in the channel, and the holding elements are possibly already sufficiently fixed by this friction so that the fixing plug 131 shown in Fig. 12A is not needed. When the plug 131 is not required for securing the holding elements 736, the plug 131 also need not be removed when the key 133 is to be inserted through the opening 135 in the channel cover 137 in the offset area 139 formed by the two holding elements 736. When the key 133 is turned in the counterclockwise direction referring to Fig. 12A, the wings 141 of the key press against the endface 143 of the offset area 139 and move the holding element 736 into the channel until reaching the position shown in Fig. 12L, at which time the key is turned by 90° and holds by itself. The entire unit shown in Fig.

12A can then be pulled out of the opening 12 (shown in Fig. 12D) in the thin wall 714, including additional hinge elements which have likewise been brought into the pulled back position with a corresponding key.

[0101] In the embodiment form according to Figs. 12J, 12K, 12L, 12M, 12N, 12O and 12P, the holding element is formed by a flat metal piece having an opening ~~[[84]]~~ 85 for receiving the spring ~~[[42]]~~ 842 and two oppositely located projections 86 which receive the spring 842 so as to secure it, so that that a handling unit is formed by the holding element and spring.

[0102] This unit can be received in the correspondingly shaped opening 88 in the body part ~~[[38]]~~ 830 (see Fig. 12K). The cutout 90 provided for the spring is shorter than the corresponding cutout 92 for the holding element 836 so that the spring 842 obtains a contact surface when the holding element 836 is pushed into the position according to Fig. 12J.

[0103] When a knob 94 is arranged at the end of the cutout 90 for the spring, the spring can be secured at the latter and the holding element 836 is prevented from falling out with the spring 842. The embodiment form according to Figs. 18A, 18B, 18C has a similar construction, wherein the fastening element 936 in Fig. 18D and the spring 942 in Fig. 18E are shown as fixedly assembled parts in Figs. 18F and 18G. Holding projections are provided in Fig. 18H. In addition, the holding element 936-1 in this case ~~has~~ may have a shape that differs from the flat shape for reasons of stability (see Fig. 18I).

[0104] In the embodiment form shown in Figs. 19A, 19B, 19C, two springs are provided, each of which is inserted laterally into the associated holding element ~~[[36]]~~ 1036. The other half of the spring element is received by the body part 1030. Fig. 19A shows the characteristic feature that reinforcement plates ~~[[95]]~~ 94, 96 are provided at both sides in cases where the wall material is very thin and are clamped in by the holding elements so that they also secure and support the thin door leaf 1014.

[0105] The embodiment form according to Figs. 19D, 19E, 19F, 19G and 19H provides two metal pieces ~~436~~ 1136 which are located next to one another and which are held jointly by a spring 1142 in such a way that these three parts form a handling unit which is stable in itself, that

is, they can be handled separately and, if required, can be inserted into a corresponding recess in the body part 1130 as can be seen in Fig. 19E.

[0108] Figs. 13A, 13B and 13C show an embodiment form in which the holding part 1234 is fastened to the head part 1228 by means of spot welding ~~{{94}}~~ 98. In Figs. 13E, 13D, a suitably formed leaf spring serving as a holding element is spot-welded at the body part 328 1328(see weld 1398).

[0111] Figs. 16A, 16B, 16C and 16D show a hinge in which the hinge part has an opening 119 like the thin wall 1614, wherein the holding part 1634 and the body part 1630 have their own head part 1628. Further, the hinge part 1616 shown in Fig. 16D has bore holes 145 for an alternative fastening by means of head screws.